

NEBRASKA ARBOVIRUS SURVEILLANCE REPORT 2019 UPDATE Week #25

Date: 07/01/2019. Please note that mosquito testing data is of 06/22/2019. Human, bird, and equine surveillance data may include data more recent data.

SUMMARY

Summary Table – Regional West Nile Virus Mosquito Testing Data, 9 June through 22 June (CDC Weeks 24 and 25)

Region	West Nile Virus (WNV) Mosquito Testing Data						
	WNV Positive Pools*	WNV Mosquito Minimum Infection Rate (MIR)**	5 yr. Avg. WNV Mosquito Minimum Infection Rate (MIR)	MIR Activity ****	WNV Vector Index (VI)***	5 Yr. Avg. WNV Vector Index (VI)	VI Activity ****
*****West	0	0.00	0.47	Low	0.000	0.018	Low
*****North Central	0	0.00	0.00	Low	0.000	0.000	Low
*****South Central	0	0.00	0.07	Low	0.000	0.016	Low
*****East	0	0.00	0.00	Low	0.000	0.000	Low
*****Statewide	0	0.00	0.11	Low	0.000	0.008	Low

*Pools are a collection of *Culex* mosquitoes consisting of between 1-50 adult female mosquitoes. The *Culex* are pooled according site, species, and collection date. For example, if site "A" had 55 *Culex tarsalis* female mosquitoes collected on 6-30-19, then there would be two pools of *Culex tarsalis* consisting of one pool of 50 and another pool of 5.

**WNV mosquito minimum infection rate (MIR) is a calculation used to estimate the proportion of infected mosquitoes in an area. It is calculated by: $MIR = \frac{\text{WNV positive pools}}{\text{\# of mosquitoes tested}} \times 1,000$.

***Vector index (VI) is another estimate of the abundance of infected mosquitoes in an area but incorporates information describing relative abundance and the MIR into a single index. It is calculated by: $VI = \frac{\text{WNV positive pools}}{\text{\# of mosquitoes tested}} \times \text{trap index of mosquito species being tested}$.

****Activity levels are described in relative terms based on historical data from at most the previous 5 years. Activity levels correspond to: **Low = 0 to 40th percentile**, **Moderate = 41st to 60th percentile**, **High = 61st to 80th percentile**, **Very High = 81st to 97th percentile**, and **Extremely High = >97th percentile**.

*****Regional breakdowns (see pg. 2 for map) are as follows: **West** = Panhandle Public Health Department (Box Butte, Dawes, and Garden Counties), Southwest NE Public Health Department (Chase and Red Willow Counties), Scotts Bluff County Health Department (Scotts Bluff County); **North Central** = Loup Basin Public Health Department (Garfield County), North Central District Health Department (Cherry and Holt Counties), West Central District Health Department (Lincoln Co.); **South Central** = Central District Health Department (Hall County), East Central District Health Department (Platte County), Four Corners Health Department (York and Seward Counties), South Heartland Health Department (Adams and Webster Counties), Two Rivers Public Health Department (Buffalo, Dawson, and Phelps Counties); **East** = Douglas County Health Department (Douglas County), Elkhorn-Logan Valley Public Health Department (Madison County), Lincoln-

Lancaster County Health Department (Lancaster County), Northeast NE Public Health Department (Dixon and Wayne Counties), Public Health Solutions (Gage and Jefferson Counties), Sarpy-Cass Health Department (Sarpy and Cass Counties), Southeast District Health Department (Richardson County), Three Rivers Public Health Department (Dodge County).

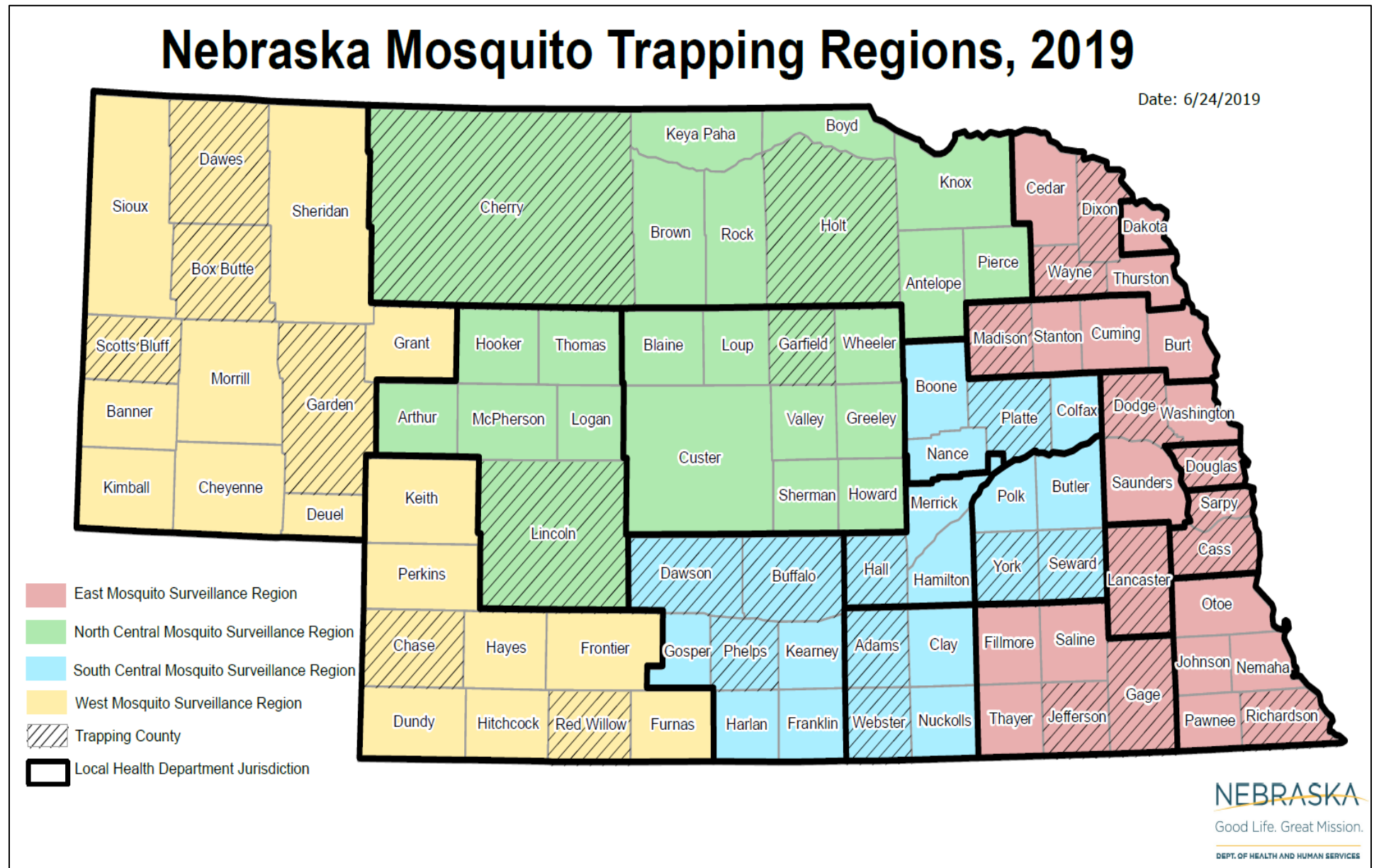


Figure 1. Nebraska Mosquito Light Trap Regions, 2019.

State summary: No positive WNV mosquito pools have been detected from *Culex* mosquitoes tested during this sampling period. Overall WNV activity in mosquitoes was low with MIR of 0.00 and VI of 0.000 for all regions. Although WNV activity is low in mosquitoes, **low or no activity does not mean NO RISK**. Mosquitoes do not advertise if they are infected with a virus and it only takes one bite from a mosquito for a person to become ill. Therefore, proper mosquito prevention should always be practiced when individuals will be outside during the mosquito season. Cumulatively, no positive WNV positive pools have been detected to date.

Protocol: Nebraska Department of Health and Human Services (NDHHS) tests *Culex* mosquito pools (NDHHS partners with local public health departments to collect mosquitoes as part of a mosquito and arboviral surveillance network) through the Nebraska Public Health Laboratory (NPHL). NPHL uses a multiplex RT-PCR to test *Culex* pools for West Nile Virus (WNV), St. Louis Encephalitis Virus (SLE), and Western Equine Encephalitis Virus (WEE). All three viruses are endemic in Nebraska with *Culex* mosquitoes being the primary vectors. Additionally, NDHHS tests (via NPHL) any collected invasive *Aedes* (*Aedes aegypti* and *Aedes albopictus*) for Chikungunya Virus (ChikV), Dengue Virus (DENV), Zika Virus (Zika), and La Crosse Encephalitis Virus (LACV) through another multiplex RT-PCR assay. No historical transmission of ChikV, DENV, and Zika has ever been reported in Nebraska, but residents traveling abroad have the potential to bring back the viruses from endemic areas in the world. Finally, starting this season, NDHHS will also test (via NPHL's multiplex RT-PCR) collected *Ochlerotatus* (*Aedes*) *triseriatus* (primary vector), *Ochlerotatus* (*Aedes*) *atropalpus*, and *Ochlerotatus* (*Aedes*) *japonicus* (potential secondary vectors) for the presence of La Crosse Encephalitis Virus (LACV). LACV is an endemic virus to the United States with most human cases occurring in the upper Midwest, mid-Atlantic, and southeastern state. While Nebraska has never reported a case, states surrounding Nebraska have reported human cases including: Iowa, Kansas, and Missouri.

Table 1. Cumulative *Culex* Mosquito Pools Submitted and Tested for WNV through 22 June 2019:

Region	County	Pools Tested	# of <i>Culex</i> Mosquitoes Tested	WNV Positives	Mosquito WNV Minimum Infection Rate (MIR)	WNV Vector Index (VI)	WNV Percent of Pools Positive (%)
West	Box Butte	2	4	0	0.00	0.000	0.00
West	Chase	8	110	0	0.00	0.000	0.00
West	Dawes	8	21	0	0.00	0.000	0.00
West	Garden	4	30	0	0.00	0.000	0.00
West	Red Willow	6	13	0	0.00	0.000	0.00
West	Scotts Bluff	5	9	0	0.00	0.000	0.00
West Region Total		33	187	0	0.00	0.000	0.00
South Central	Adams	6	106	0	0.00	0.000	0.00
South Central	Buffalo	42	1580	0	0.00	0.000	0.00
South Central	Dawson	11	320	0	0.00	0.000	0.00
South Central	Hall	15	208	0	0.00	0.000	0.00
South Central	Phelps	29	924	0	0.00	0.000	0.00
South Central	Platte	15	88	0	0.00	0.000	0.00
South Central	Seward	3	93	0	0.00	0.000	0.00
South Central	Webster	20	137	0	0.00	0.000	0.00
South Central	York	6	110	0	0.00	0.000	0.00
South Central Region Total		147	3566	0	0.00	0.000	0.00
North Central	Cherry	14	120	0	0.00	0.000	0.00
North Central	Garfield	17	397	0	0.00	0.000	0.00
North Central	Holt	6	20	0	0.00	0.000	0.00
North Central	Lincoln	9	84	0	0.00	0.000	0.00
North Central Region Total		46	621	0	0.00	0.000	0.00
East	Cass	3	7	0	0.00	0.000	0.00
East	Dixon	14	359	0	0.00	0.000	0.00
East	Dodge	23	336	0	0.00	0.000	0.00
East	Douglas	26	154	0	0.00	0.000	0.00
East	Gage	9	74	0	0.00	0.000	0.00
East	Jefferson	0	0	0	#DIV/0!	0.000	0.00
East	Lancaster	27	601	0	0.00	0.000	0.00
East	Madison	10	29	0	0.00	0.000	0.00
East	Richardson	48	1107	0	0.00	0.000	0.00
East	Sarpy	9	59	0	0.00	0.000	0.00
East	Wayne	10	134	0	0.00	0.000	0.00
East Region Total		179	2860	0	0.00	0.000	0.00
Statewide Total		405	7234	0	0.00	0.000	0.00

Table 2. Cumulative *Culex* Mosquito Pools Submitted and Tested for SLE through 22 June 2019:

Region	County	Pools Tested	# of <i>Culex</i> Mosquitoes Tested	SLE Positives	Mosquito SLE Minimum Infection Rate (MIR)	SLE Vector Index (VI)	SLE Percent of Pools Positive (%)
West	Box Butte	2	4	0	0.00	0.000	0.00
West	Chase	8	110	0	0.00	0.000	0.00
West	Dawes	8	21	0	0.00	0.000	0.00
West	Garden	4	30	0	0.00	0.000	0.00
West	Red Willow	6	13	0	0.00	0.000	0.00
West	Scotts Bluff	5	9	0	0.00	0.000	0.00
West Region Total		33	187	0	0.00	0.000	0.00
South Central	Adams	6	106	0	0.00	0.000	0.00
South Central	Buffalo	42	1580	0	0.00	0.000	0.00
South Central	Dawson	11	320	0	0.00	0.000	0.00
South Central	Hall	15	208	0	0.00	0.000	0.00
South Central	Phelps	29	924	0	0.00	0.000	0.00
South Central	Platte	15	88	0	0.00	0.000	0.00
South Central	Seward	3	93	0	0.00	0.000	0.00
South Central	Webster	20	137	0	0.00	0.000	0.00
South Central	York	6	110	0	0.00	0.000	0.00
South Central Region Total		147	3566	0	0.00	0.000	0.00
North Central	Cherry	14	120	0	0.00	0.000	0.00
North Central	Garfield	17	397	0	0.00	0.000	0.00
North Central	Holt	6	20	0	0.00	0.000	0.00
North Central	Lincoln	9	84	0	0.00	0.000	0.00
North Central Region Total		46	621	0	0.00	0.000	0.00
East	Cass	3	7	0	0.00	0.000	0.00
East	Dixon	14	359	0	0.00	0.000	0.00
East	Dodge	23	336	0	0.00	0.000	0.00
East	Douglas	26	154	0	0.00	0.000	0.00
East	Gage	9	74	0	0.00	0.000	0.00
East	Jefferson	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Lancaster	27	601	0	0.00	0.000	0.00
East	Madison	10	29	0	0.00	0.000	0.00
East	Richardson	48	1107	0	0.00	0.000	0.00
East	Sarpy	9	59	0	0.00	0.000	0.00
East	Wayne	10	134	0	0.00	0.000	0.00
East Region Total		179	2860	0	0.00	0.000	0.00
Statewide Total		405	7234	0	0.00	0.000	0.00

Table 3. Cumulative *Culex* Mosquito Pools Submitted and Tested for WEE through 22 June 2019:

Region	County	Pools Tested	# of <i>Culex</i> Mosquitoes Tested	WEE Positives	Mosquito WEE Minimum Infection Rate (MIR)	WEE Vector Index (VI)	WEE Percent of Pools Positive (%)
West	Box Butte	2	4	0	0.00	0.000	0.00
West	Chase	8	110	0	0.00	0.000	0.00
West	Dawes	8	21	0	0.00	0.000	0.00
West	Garden	4	30	0	0.00	0.000	0.00
West	Red Willow	6	13	0	0.00	0.000	0.00
West	Scotts Bluff	5	9	0	0.00	0.000	0.00
West Region Total		33	187	0	0.00	0.000	0.00
South Central	Adams	6	106	0	0.00	0.000	0.00
South Central	Buffalo	42	1580	0	0.00	0.000	0.00
South Central	Dawson	11	320	0	0.00	0.000	0.00
South Central	Hall	15	208	0	0.00	0.000	0.00
South Central	Phelps	29	924	0	0.00	0.000	0.00
South Central	Platte	15	88	0	0.00	0.000	0.00
South Central	Seward	3	93	0	0.00	0.000	0.00
South Central	Webster	20	137	0	0.00	0.000	0.00
South Central	York	6	110	0	0.00	0.000	0.00
South Central Region Total		147	3566	0	0.00	0.000	0.00
North Central	Cherry	14	120	0	0.00	0.000	0.00
North Central	Garfield	17	397	0	0.00	0.000	0.00
North Central	Holt	6	20	0	0.00	0.000	0.00
North Central	Lincoln	9	84	0	0.00	0.000	0.00
North Central Region Total		46	621	0	0.00	0.000	0.00
East	Cass	3	7	0	0.00	0.000	0.00
East	Dixon	14	359	0	0.00	0.000	0.00
East	Dodge	23	336	0	0.00	0.000	0.00
East	Douglas	26	154	0	0.00	0.000	0.00
East	Gage	9	74	0	0.00	0.000	0.00
East	Jefferson	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Lancaster	27	601	0	0.00	0.000	0.00
East	Madison	10	29	0	0.00	0.000	0.00
East	Richardson	48	1107	0	0.00	0.000	0.00
East	Sarpy	9	59	0	0.00	0.000	0.00
East	Wayne	10	134	0	0.00	0.000	0.00
East Region Total		179	2860	0	0.00	0.000	0.00
Statewide Total		405	7234	0	0.00	0.000	0.00

Table 4. Cumulative Invasive *Aedes* Mosquito Pools Submitted and Tested for ChikV through 22 June 2019:

Region	County	Pools Tested	# of <i>Aedes</i> Mosquitoes Tested	ChikV Positives	Mosquito ChikV Minimum Infection Rate (MIR)	ChikV Vector Index (VI)	ChikV Percent of Pools Positive (%)
West	Box Butte	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Chase	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Dawes	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Garden	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Red Willow	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Scotts Bluff	0	0	0	#DIV/0!	0.000	#DIV/0!
West Region Total		0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Adams	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Buffalo	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Dawson	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Hall	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Phelps	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Platte	1	1	0	0.00	0.000	0.00
South Central	Seward	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Webster	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	York	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central Region Total		1	1	0	0.00	0.000	0.00
North Central	Cherry	0	0	0	#DIV/0!	0.000	#DIV/0!
North Central	Garfield	2	3	0	0.00	0.000	0.00
North Central	Holt	0	0	0	#DIV/0!	0.000	#DIV/0!
North Central	Lincoln	1	1	0	0.00	0.000	0.00
North Central Region Total		3	4	0	0.00	0.000	0.00
East	Cass	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Dixon	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Dodge	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Douglas	2	6	0	0.00	0.000	0.00
East	Gage	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Jefferson	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Lancaster	4	5	0	0.00	0.000	0.00
East	Madison	2	7	0	0.00	0.000	0.00
East	Richardsor	10	16	0	0.00	0.000	0.00
East	Sarpy	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Wayne	0	0	0	#DIV/0!	0.000	#DIV/0!
East Region Total		18	34	0	0.00	0.000	0.00
Statewide Total		22	39	0	0.00	0.000	0.00

Table 5. Cumulative Invasive *Aedes* Mosquito Pools Submitted and Tested for DENV through 22 June 2019:

Region	County	Pools Tested	# of <i>Aedes</i> Mosquitoes Tested	DENV Positives	Mosquito DENV Minimum Infection Rate (MIR)	DENV Vector Index (VI)	DENV Percent of Pools Positive (%)
West	Box Butte	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Chase	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Dawes	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Garden	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Red Willow	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Scotts Bluff	0	0	0	#DIV/0!	0.000	#DIV/0!
West Region Total		0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Adams	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Buffalo	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Dawson	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Hall	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Phelps	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Platte	1	1	0	0.00	0.000	0.00
South Central	Seward	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Webster	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	York	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central Region Total		1	1	0	0.00	0.000	0.00
North Central	Cherry	0	0	0	#DIV/0!	0.000	#DIV/0!
North Central	Garfield	2	3	0	0.00	0.000	0.00
North Central	Holt	0	0	0	#DIV/0!	0.000	#DIV/0!
North Central	Lincoln	1	1	0	0.00	0.000	0.00
North Central Region Total		3	4	0	0.00	0.000	0.00
East	Cass	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Dixon	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Dodge	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Douglas	2	6	0	0.00	0.000	0.00
East	Gage	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Jefferson	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Lancaster	4	5	0	0.00	0.000	0.00
East	Madison	2	7	0	0.00	0.000	0.00
East	Richardsor	10	16	0	0.00	0.000	0.00
East	Sarpy	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Wayne	0	0	0	#DIV/0!	0.000	#DIV/0!
East Region Total		18	34	0	0.00	0.000	0.00
Statewide Total		22	39	0	0.00	0.000	0.00

Table 6. Cumulative Invasive *Aedes* Mosquito Pools Submitted and Tested for Zika Virus through 22 June 2019:

Region	County	Pools Tested	# of <i>Aedes</i> Mosquitoes Tested	Zika Positives	Mosquito Zika Minimum Infection Rate (MIR)	Zika Vector Index (VI)	Zika Percent of Pools Positive (%)
West	Box Butte	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Chase	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Dawes	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Garden	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Red Willow	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Scotts Bluff	0	0	0	#DIV/0!	0.000	#DIV/0!
West Region Total		0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Adams	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Buffalo	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Dawson	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Hall	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Phelps	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Platte	1	1	0	0.00	0.000	0.00
South Central	Seward	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Webster	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	York	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central Region Total		1	1	0	0.00	0.000	0.00
North Central	Cherry	0	0	0	#DIV/0!	0.000	#DIV/0!
North Central	Garfield	2	3	0	0.00	0.000	0.00
North Central	Holt	0	0	0	#DIV/0!	0.000	#DIV/0!
North Central	Lincoln	1	1	0	0.00	0.000	0.00
North Central Region Total		3	4	0	0.00	0.000	0.00
East	Cass	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Dixon	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Dodge	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Douglas	2	6	0	0.00	0.000	0.00
East	Gage	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Jefferson	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Lancaster	4	5	0	0.00	0.000	0.00
East	Madison	2	7	0	0.00	0.000	0.00
East	Richardsor	10	16	0	0.00	0.000	0.00
East	Sarpy	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Wayne	0	0	0	#DIV/0!	0.000	#DIV/0!
East Region Total		18	34	0	0.00	0.000	0.00
Statewide Total		22	39	0	0.00	0.000	0.00

Table 7. Cumulative Invasive *Aedes albopictus* and *Ochlerotatus (Aedes)* Mosquito Pools Submitted and Tested for LACV through 15 June 2019:

Region	County	Pools Tested	# of <i>Aedes</i> Mosquitoes Tested	LACV Positives	Mosquito LACV Minimum Infection Rate (MIR)	LACV Vector Index (VI)	LACV Percent of Pools Positive (%)
West	Box Butte	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Chase	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Dawes	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Garden	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Red Willow	0	0	0	#DIV/0!	0.000	#DIV/0!
West	Scotts Bluff	0	0	0	#DIV/0!	0.000	#DIV/0!
West Region Total		0	0	0	#DIV/0!		#DIV/0!
South Central	Adams	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Buffalo	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Dawson	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Hall	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Phelps	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Platte	1	1	0	0	0.000	0
South Central	Seward	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	Webster	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central	York	0	0	0	#DIV/0!	0.000	#DIV/0!
South Central Region Total		1	1	0	0.000		0.000
North Central	Cherry	0	0	0	#DIV/0!	0.000	#DIV/0!
North Central	Garfield	2	3	0	0	0.000	0
North Central	Holt	0	0	0	#DIV/0!	0.000	#DIV/0!
North Central	Lincoln	1	1	0	0	0.000	0
North Central Region Total		3	4	0	0.000		0.000
East	Cass	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Dixon	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Dodge	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Douglas	2	6	0	0	0.000	0
East	Gage	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Jefferson	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Lancaster	4	5	0	0	0.000	0
East	Madison	2	7	0	0	0.000	0
East	Richardsor	10	16	0	0	0.000	0
East	Sarpy	0	0	0	#DIV/0!	0.000	#DIV/0!
East	Wayne	0	0	0	#DIV/0!	0.000	#DIV/0!
East Region Total		18	34	0	0.000		0.000
Statewide Total		22	39	0	0.00	\$0.000	0.00

BIRD AND EQUINE SURVEILLANCE

Dead bird reporting and testing: As of 7/01/2018, 29 total dead birds have been reported to the NDHHS dead bird database. Presently, two of these has met criteria for WNV testing. Both have been negative. No positive birds have been identified at this time.

Equine WNV surveillance: The Nebraska Department of Agriculture (NDA) reports equine cases of WNV to NDHHS. As of 6/21/2019, no equine WNV cases have been reported by NDA.

HUMAN MOSQUITO-BORNE DISEASE CASES

Weekly reported cases (confirmed and probable) of human clinical mosquito-borne disease infections in Nebraska residents is summarized in the table below. It includes human infections of WNV, SLE, WEE, ChikV, DENV, Zika, and malaria. Please note that cases are by earliest report date of infection not necessarily by date of onset. Table only includes reported cases that had exposure or onset of disease in 2019. All data is preliminary and may change as more information is received.

Remarks: As of 6/29/2019, no confirmed or probable human cases of WNV or human WNV blood donors have been reported in the state this year. Several travel related mosquito-borne disease cases have been reported this year and include one malaria and one Zika case.

Table 8. Reports of Mosquito-Borne Disease in Nebraska, 2019

CDC Week	Week Ending Date	WNV^ (Clinical Cases)	WNV^ (Asymptomatic Blood Donors)	SLE^	WEE^	CHIKV*	DENV*	ZIKA*	Malaria*	Total
1	5-Jan-19	0	0	0	0	0	0	0	0	0
2	12-Jan-19	0	0	0	0	0	0	0	0	0
3	19-Jan-19	0	0	0	0	0	0	0	0	0
4	26-Jan-19	0	0	0	0	0	0	0	0	0
5	2-Feb-19	0	0	0	0	0	0	0	0	0
6	9-Feb-19	0	0	0	0	0	0	0	0	0

7	16-Feb-19	0	0	0	0	0	0	0	0	0
8	23-Feb-19	0	0	0	0	0	0	0	0	0
9	2-Mar-19	0	0	0	0	0	0	0	0	0
10	9-Mar-19	0	0	0	0	0	0	0	0	0
11	16-Mar-19	0	0	0	0	0	0	0	0	0
12	23-Mar-19	0	0	0	0	0	0	0	0	0
13	30-Mar-19	0	0	0	0	0	0	1	0	1
14	6-Apr-19	0	0	0	0	0	0	0	0	0
15	13-Apr-19	0	0	0	0	0	0	0	0	0
16	20-Apr-19	0	0	0	0	0	0	0	0	0
17	27-Apr-19	0	0	0	0	0	0	0	0	0
18	4-May-19	0	0	0	0	0	0	0	0	0
19	11-May-19	0	0	0	0	0	0	0	0	0
20	18-May-19	0	0	0	0	0	0	0	1	1
21	25-May-19	0	0	0	0	0	0	0	0	0
22	1-Jun-19	0	0	0	0	0	0	0	0	0
23	8-Jun-19	0	0	0	0	0	0	0	0	0
24	15-Jun-19	0	0	0	0	0	0	0	0	0
25	22-Jun-19	0	0	0	0	0	0	0	0	0
26	29-Jun-19	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	1	1	2

^These are endemic viruses that have been historically transmitted by mosquitoes in Nebraska and maybe acquired within the state. It should be noted that reports are for Nebraska residents and that infection may have been acquired elsewhere. *These diseases are typically acquired via travel overseas to areas where the virus or parasite is endemic. Currently, Nebraska does not have local transmission via mosquitoes of these organisms and the probability of local transmission by local mosquitoes is thought to be very low and not expected. However, to further lower and prevent the chance of local transmission of these “travel-related” diseases, returning travelers or visitors from these areas should prevent mosquito bites for at least three weeks upon arrival to Nebraska. Additionally, although cases of CHIKV, DENV, and ZIKA are most often acquired via overseas travel, small areas of transmission and small, local outbreaks within the U.S. have occurred and may occur in the future. Examples of states that have seen local transmission include: Florida, (DENV, CHIKV, and ZIKA), Hawaii (DENV), and Texas (DENV, CHIKV, and ZIKA).

Table 9. Human WNV Clinical Case Information, Nebraska 2019

Age Range	Number
0 to 10	0
11 to 20	0
21 to 30	0
31 to 40	0
41 to 50	0
51 to 60	0
61 to 70	0
71+	0
Gender	
Male	0
Female	0
Diagnosis	
WNV Neuroinvasive Disease	0
WNV Non-Neuroinvasive Disease	0
Hospitalized	0
Death	0

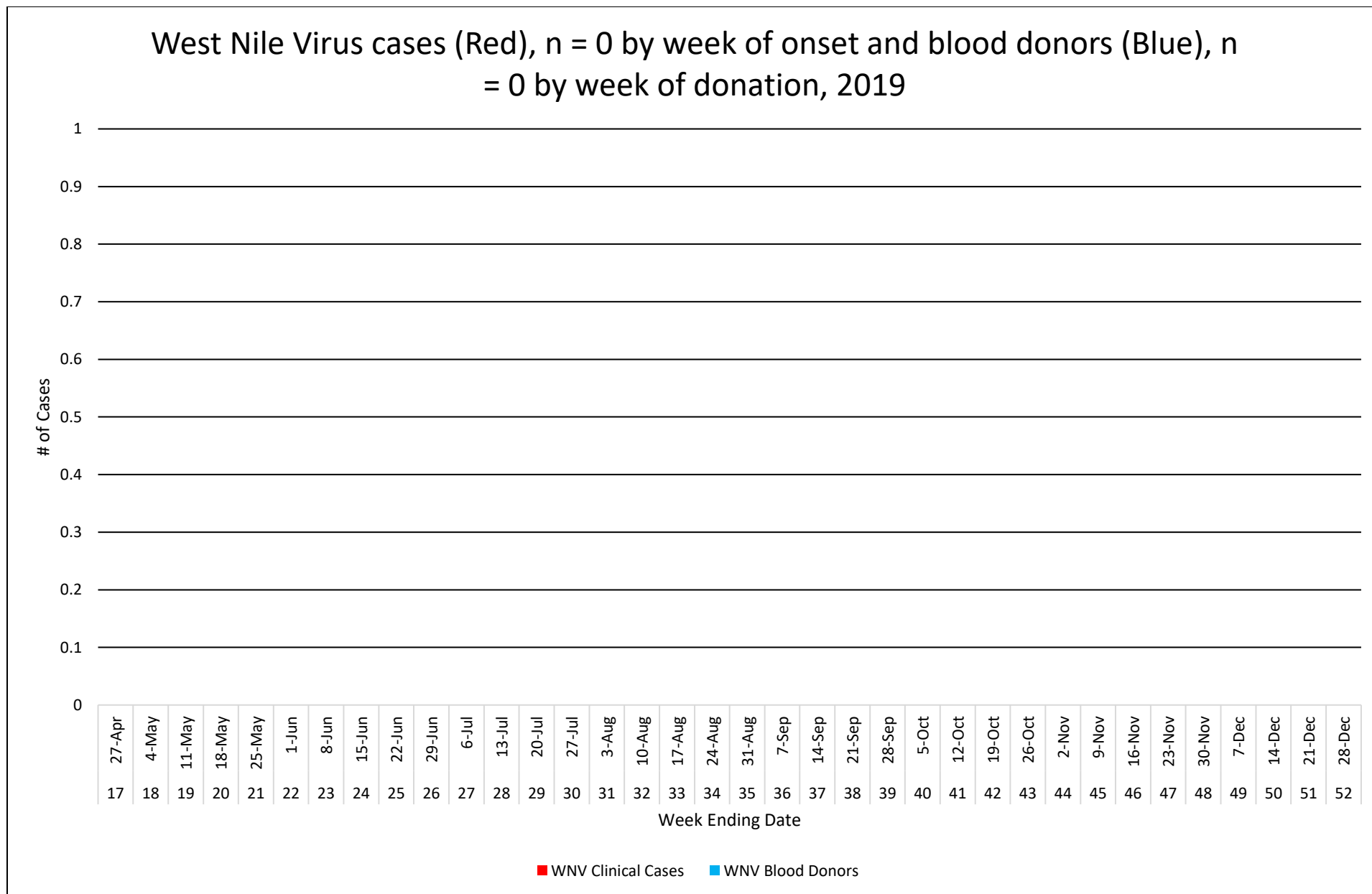


Figure 1. Epi-curve of human WNV infections (clinical and asymptomatic blood donors) by onset week (clinical) and week of donation (blood donor), Nebraska 2019.

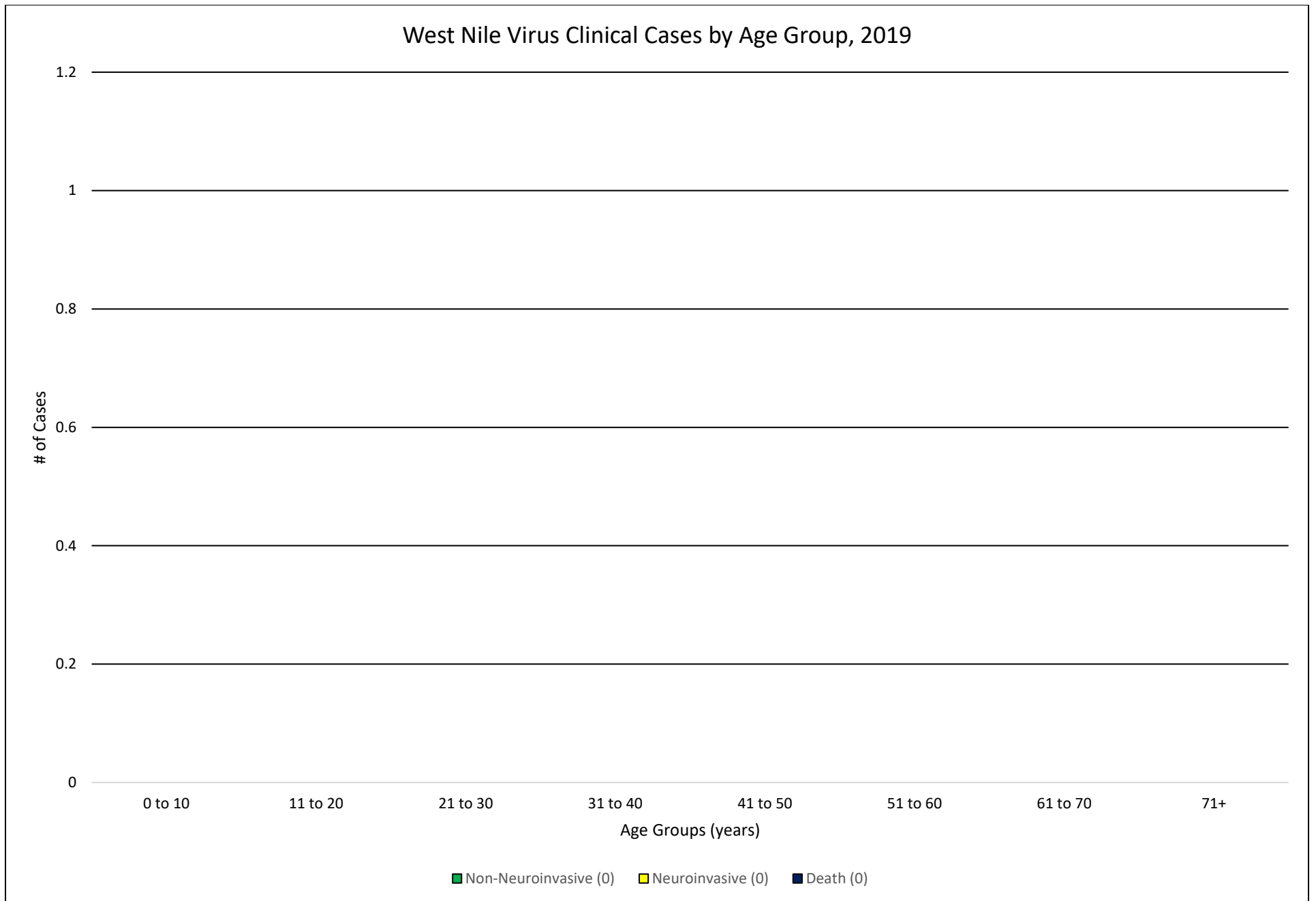


Figure 2. WNV human clinical cases by 10 year age groups, 2019.

Table 10. Number of Human WNV Clinical Cases by Onset Week and Nebraska Local Health Jurisdiction, 2019

CDC Wk.	17	18	19	20	21	22	23	24	25	26	
Local Health Dept. Jurisdiction											Total
Central District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Dakota County Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Douglas County Health Dept.	0	0	0	0	0	0	0	0	0	0	0
East Central District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Elkhorn-Logan Valley Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Four Corners Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Lincoln-Lancaster County Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Loup Basin Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
North Central District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Northeast Nebraska Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Panhandle Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Public Health Solutions	0	0	0	0	0	0	0	0	0	0	0
Sarpy-Cass Dept. of Health and Wellness	0	0	0	0	0	0	0	0	0	0	0
Scotts Bluff County Health Dept.	0	0	0	0	0	0	0	0	0	0	0
South Heartland District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Southeast District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Southwest Nebraska Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Three Rivers Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Two Rivers Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
West Central District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Statewide Total	0	0	0	0	0	0	0	0	0	0	0

Table 11. Number of Human WNV Blood Donors by Week of Donation and Nebraska Local Health Jurisdiction, 2019

CDC Wk.	17	18	19	20	21	22	23	24	25	26	
Local Health Dept. Jurisdiction											Total
Central District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Dakota County Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Douglas County Health Dept.	0	0	0	0	0	0	0	0	0	0	0
East Central District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Elkhorn-Logan Valley Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Four Corners Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Lincoln-Lancaster County Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Loup Basin Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
North Central District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Northeast Nebraska Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Panhandle Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Public Health Solutions	0	0	0	0	0	0	0	0	0	0	0
Sarpy-Cass Dept. of Health and Wellness	0	0	0	0	0	0	0	0	0	0	0
Scotts Bluff County Health Dept.	0	0	0	0	0	0	0	0	0	0	0
South Heartland District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Southeast District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Southwest Nebraska Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Three Rivers Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Two Rivers Public Health Dept.	0	0	0	0	0	0	0	0	0	0	0
West Central District Health Dept.	0	0	0	0	0	0	0	0	0	0	0
Statewide Total	0	0	0	0	0	0	0	0	0	0	0

Anytime mosquitoes are active there is always the possibility of acquiring WNV or another mosquito-borne disease and proper mosquito prevention methods should be utilized both here at home and when traveling abroad. Examples include:

- Applying an EPA approved mosquito repellent (DEET, picaridin, oil of lemon eucalyptus, or IR3535).
- Limiting exposure when outdoors by wearing long sleeve shirts and pants.
- Limiting time spent outdoors when mosquitoes are most active, typically dusk to midnight.
- Getting rid of standing water that mosquitoes may breed in at least once a week. Remember to change water in outdoor pet watering dishes along with bird baths and dump out water in flower pots, garden containers, or other objects that may hold water.

For more information on mosquito-borne diseases and prevention information please visit the following websites:

<http://dhhs.ne.gov/wnv> (Nebraska Department of Health and Human Services WNV Surveillance Program web site).

<http://dhhs.ne.gov/Pages/West-Nile-Virus-Education.aspx> (Nebraska Department of Health and Human Services Mosquito-Borne Disease web site and links to downloadable educational pamphlets).

<https://www.cdc.gov/westnile/> (CDC West Nile Virus web site).

<https://www.cdc.gov/sle/> (CDC St. Louis Encephalitis Virus web site).

<https://www.cdc.gov/chikungunya/index.html> (CDC Chikungunya Virus web site).

<https://www.cdc.gov/dengue/index.html> (CDC Dengue Virus web site).

<https://www.cdc.gov/zika/index.html> (CDC Zika Virus web site).

<https://www.cdc.gov/parasites/malaria/index.html> (CDC Malaria web site).

<https://www.cdc.gov/features/stopmosquitoes/index.html> (CDC Avoid Mosquito Bites web site)



Fight the Bite!!